WHAT IS CLAIMED IS

1. A single carrier/DS-CDMA packet transmission method that expands a bandwidth of information symbols by a sequence of spreading codes, and transmits packets by use of spreading signals having an expanded bandwidth, comprising:

assigning a predetermined time slot to reservation demand packet transmission; and

time-multiplexing and transmitting reservation demand packets and data packets, with respect to part or all of the spreading codes.

2. A single carrier/DS-CDMA packet transmission method that expands a bandwidth of information symbols by a sequence of spreading codes, and transmits packets by use of spreading signals having an expanded bandwidth, comprising:

assigning k ($0<k<n$) spreading codes of all N spreading codes to reservation demand packet transmission, and

time-multiplexing and transmitting reservation demand packets and data packets.

3. The packet transmission method as claimed in claim 1 or 2, wherein reservation demand packet transmission admission probability determined in advance is lowered when a channel occupancy rate of the data packets exceeds a predetermined value.

4. The packet transmission method as claimed in claim 2, wherein the spreading codes assigned to the reservation demand packet

transmission are decreased in number, and the spreading codes assigned to data-packet transmission are increased in number when a channel occupancy rate of the data packets exceeds a predetermined value.

5. The packet transmission method as claimed in claim 2, wherein the reservation demand packet transmission admission probability determined in advance is lowered first when a channel occupancy rate of the data packets exceeds a predetermined value, and, subsequently, the spreading codes assigned to the reservation demand packet transmission are decreased in number while the spreading codes assigned to data-packet transmission are increased in number when the channel occupancy rate of the data packets still exceeds the predetermined value even after the reservation demand packet transmission admission probability is lowered.

6. The packet transmission method as claimed in claim 2, wherein the spreading codes assigned to the reservation demand packet transmission are decreased in number first when a channel occupancy rate of the data packets exceeds a predetermined value, and, subsequently, the reservation demand packet transmission admission probability determined in advance is lowered if the channel occupancy rate of the data packets still exceeds the predetermined value even after the spreading codes assigned to the reservation demand packet transmission ware decreased in number.

7. A mobile-radio packet transmission method using the packet transmission method as claimed in claim 3, 4, 5, or 6, wherein a base station measures the channel occupancy rate of the data packet, and determines the reservation demand packet transmission admission probability and a number indicative of how many spreading codes are available for the reservation demand packets.

8. The mobile-radio packet transmission method as claimed in claim 7, wherein the base station inserts the number of spreading codes available for the reservation demand packets and the reservation demand packet transmission admission probability into an information channel of a downlink by time-sharing.

9. A single carrier/DS-CDMA packet transmission method that expands a bandwidth of information symbols by a sequence of spreading codes, and transmits packets by use of spreading signals having an expanded bandwidth, comprising utilizing a short repetition period spreading code when expanding a bandwidth of reservation demand packets and data packets.

10. A single carrier/DS-CDMA packet transmission method that expands a bandwidth of information symbols by a sequence of spreading codes, and transmits packets by use of spreading signals having an expanded bandwidth, comprising:

utilizing a short repetition period

spreading code when expanding a bandwidth of reservation demand packets; and

utilizing a long repetition period spreading code when expanding a bandwidth of data packets.

11. A single carrier/DS-CDMA packet transmission system having a base station and a plurality of mobile stations, wherein

the base station assigns a predetermined time slot to reservation demand packet transmission in regard to part or all of spreading codes, and notifies a mobile station of an assigned reservation demand packet channel, and

the mobile station transmits a reservation demand packet using the assigned time slot.

12. A single carrier/DS-CDMA packet transmission system having a base station and a plurality of mobile stations, wherein

the base station assigns k (0<k<n) spreading codes of a total of N spreading codes to reservation demand packet transmission, and notifies a mobile station of an assigned reservation demand packet channel, and

the mobile station transmits a reservation demand packet using the assigned spreading codes.

13. A single carrier/DS-CDMA packet transmission system comprising a base station and a plurality of mobile stations, wherein the base station comprises:

measurement means which measures a channel

occupancy rate of a data packet; and

means which determines a reservation demand packet transmission admission probability and a number indicative of how many spreading codes are available for reservation demand packets, and notifies the mobile station thereof,

wherein the base station determines the number of spreading codes available for reservation demand packets and the reservation demand packet transmission admission probability based on the measurement by the measurement means, and inserts a determined reservation demand packet channel into a downlink broadcast channel by time-multiplexing, followed by notifying the mobile station thereof.

14. An uplink packet transmission method in a multi-carrier/DS-CDMA mobile communication system having n (n being a natural number equal to or more than two) subcarriers, comprising:

setting up frames that define constant intervals in each communication channel of the subcarriers, and further setting up time slots by temporally dividing each of the frames into F pieces (F being a natural number equal to or more than two), and

spreading, in a mobile station, a packet to be transmitted by spreading codes in synchronization with timing of the time slots, and transmitting the packet to the base station.

15. The uplink packet transmission method as claimed in claim 14,

said mobile station requiring said base

station to assign time slots and spreading codes by transmitting a reservation demand packet as preparation for packet transmission,

said base station assigning time slots and spreading codes to the mobile station that demanded, and

said mobile station spreading the packet by the assigned spreading codes and transmitting the packet via the time slots assigned by said base station.

16. The uplink packet transmission method as claimed in claim 14, wherein said mobile station makes random access to one of time slots of the communication channels to transmit a packet, without requiring the base station to assign time slots.

17. The uplink packet transmission method as claimed in claim 14, wherein said mobile station changes transmission speed of the mobile station according to a transmission volume of a packet that the mobile station is to transmit.

18. The uplink packet transmission method as claimed in claim 15,

said base station assigning k1 (k1 being a natural number, and $k1 \leq Fn$) time slots for the reservation demand packet transmission, and further assigning m1 (m1 being a natural number, $m1 \leq$ a total number of available spreading codes) spreading codes for spreading the reservation demand packet, and

said mobile station spreading and

transmitting the reservation demand packet by one of the assigned spreading codes in the assigned time slots.

19. The uplink packet transmission method as claimed in claim 18, wherein said base station changes the number k1 of the time slots for the reservation demand packet transmission according to the number of reservation demand packets sent from the mobile station during a predetermined period.

20. The uplink packet transmission method as claimed in claim 18, wherein said base station changes the number m1 of the spreading codes for the reservation demand packet transmission according to the number of reservation demand packets sent from the mobile station during a predetermined period.

21. The uplink packet transmission method as claimed in claim 18, wherein said base station changes the number k1 of the time slots for the reservation demand packet transmission and the number m1 of the spreading codes for the reservation demand packet transmission according to the number of reservation demand packets sent from the mobile station during a predetermined period.

22. The uplink packet transmission method as claimed in claim 18, wherein the base station notifies the base station of a transmission limit of the reservation demand packet when numerous reservation demand packets are received from the mobile stations during a predetermined period, and

the mobile station transmits the reservation demand packet according to the limit.

23. The uplink packet transmission method as claimed in claim 16, wherein said base station assigns k2 (k2 being a natural number, and k2 <= Fn) time slots as usable for packet transmission through random accessing by the mobile station, and further assigns m2 (m2 being a natural number, and m2 <= a total number of available spreading codes) spreading codes for spreading a random access packet, and wherein the mobile station spreads a random access packet by one of the assigned spreading codes and transmits the packet in the assigned time slots.

24. The uplink packet transmission method as claimed in claim 23, wherein the base station changes the number k2 of the time slots for the random access packet transmission according to the number of random access packets sent from the mobile station during a predetermined period.

25. The uplink packet transmission method as claimed in claim 23, wherein the base station changes the number m2 of the spreading codes for the random access packet transmission according to the number of random access packets sent from the mobile station during a predetermined period.

26. The uplink packet transmission method as claimed in claim 23, wherein the base station changes the number k2 of the time slots for the random access packet transmission and the number m2

of the spreading codes for the random access packet transmission according to the number of random access packets sent from the mobile station during a predetermined period.

27. The uplink packet transmission method as claimed in claim 10, wherein the base station notifies the base station of a transmission limit of random access packets when numerous random access packets are received from the mobile stations during a predetermined period, and the mobile station makes random accesses according to the limit.

28. The uplink packet transmission method as claimed in claim 17, wherein the base station assigns p spreading codes (p being a natural number, and $p \leq$ a total number of available spreading codes) to the mobile station according to a transmission volume of the mobile station.

29. The uplink packet transmission method as claimed in claim 17, wherein the base station assigns to the mobile station a spreading code having a spreading factor that varies according to a transmission volume of the mobile station.

30 The uplink packet transmission method as claimed in claim 17, wherein the base station assigns q time slots (q being a natural number, and $q \leq Fn$) to the mobile station according to a transmission volume of the mobile station.

31. The uplink packet transmission method

as claimed in claim 17, wherein the base station performs assigning by changing at least two of a number p of spreading codes (p being a natural number, and p ≤ a total number of available spreading codes), spreading codes having different spreading factors, and a number q of time slots q (q being a natural number and q ≤ Fn) according to a transmission volume of the mobile station.

32. A downlink channel structure in a multi-carrier/DS-CDMA mobile communication system that expands a bandwidth of information symbols by a sequence of spreading codes and transmits spreading information signal obtained by the bandwidth expansion by using a plurality of subcarriers having predetermined frequency intervals, wherein

a plurality of communication channels assigned to the respective subcarriers are divided into predetermined time frames and multiplexed, and

the plurality of communication channels assigned to the respective subcarriers are configured to include a common-control channel shared by a plurality of users and communication channels specific to the respective users.

33. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in claim 32, wherein the common-control channel includes information for controlling each user's uplink transmission.

34. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as

claimed in claim 32 or 33, wherein the common-control channel includes information about a response to each user's uplink transmission.

35. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in any one of claims 32 through 34, wherein the common-control channel includes broadcast information commonly directed to each user.

36. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in any one of claims 32 through 35, wherein the common-control channel includes a pilot symbol used for demodulating a received signal by each user.

37. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in any one of claims 32 through 36, wherein the common-control channel is assigned to one or more code channels in part or all of the subcarriers.

38. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in any one of claims 32 through 37, wherein the common-control channel includes different kinds of information for different subcarriers.

39. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in any one of claims 32 through 38, wherein information included in the common-control channel assigned to each subcarrier is time-multiplexed to

part of each time frame.

40. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in claim 39, wherein the information included in the common-control channel assigned to each subcarrier is time-multiplexed to an identical timing portion of each time frame of each subcarrier.

41. The downlink channel structure in the multi-carrier/DS-CDMA mobile communication system as claimed in claim 39, wherein the information included in the common-control channel assigned to each subcarrier is time-multiplexed to different timing portions of each time frame of each subcarrier.